C/CAG
City/County Association of Governments of San Mateo County

VTA
Santa Clara Valley Transportation Authority

TA
San Mateo County Transportation Authority

2020 Peninsula Gateway Corridor Study
Technical Advisory Committee

DATE: Wednesday, October 6, 2004

TIME: 2:00 P.M

PLACE: Menlo Park City Hall
1st Floor Council Conference Room
701 Laurel Street
Menlo Park, CA

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1.0 Introductions

2.0 Review and discussion of Initial Improvement Themes and Solutions (presentation by Kimley-Horn).

3.0 Discussion of Community-Based Transportation Planning/Environmental Justice Grant Application to be submitted to Caltrans.

4.0 Schedule next meeting for November 3, 2004.

5.0 Adjourn.

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TO: Walter Martone, C/CAG

FROM: Paul Krupka, Kimley-Horn and Associates

DATE: September 29, 2004

SUBJECT: INITIAL IMPROVEMENT THEMES AND SOLUTIONS
2020 Peninsula Gateway Corridor Study

This memorandum summarizes our initial thoughts about potential improvement themes and related solutions based upon our review of baseline traffic forecasts and expected future congestion levels. It is intended primarily to generate discussion and feedback at the October TAC and PAC meetings, which in turn will be used to develop a set of proposed improvement alternatives or packages to study in greater detail.

Our observations about existing conditions, coupled with our evaluation of future baseline traffic forecasts and expected future congestion levels *and* feedback from community members, revealed some significant improvement themes that provided the foundation for respective improvements. The themes we have initially defined are listed below.

1. Improve connection (i.e. increase traffic capacity) between Dumbarton Bridge touchdown and Highway 101 *North*
2. Improve connection (i.e. increase traffic capacity) between Dumbarton Bridge touchdown and Highway 101 *South*
3. Expand capacity on Highway 101 South (County line to Shoreline)
4. Expand capacity on Highway 101 North (County Line to Woodside Road)
5. Divert commuter traffic from East Palo Alto neighborhoods (east/south of University)
6. Divert commuter traffic off University Avenue
7. Traffic calming on local residential streets
8. Improve freeway access
9. Accommodate traffic impacts of major developments
10. Improve traffic management
11. Improve local access across Highway 101

The following lists summarize issues and potential solutions related to these themes. This list is not intended to be all inclusive and it is recognized that many variants are possible for each improvement solution cited.

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THEME 1

Improve connection (i.e. increase traffic capacity) between Dumbarton Bridge touchdown and Highway 101 *North*

ISSUES

- Congestion at intersections on Bayfront Expressway: University, Willow, Marsh
- Conflicting traffic movements at Marsh/101 interchange
- Willow Road, although a State Highway, is a four-lane arterial serving several local uses
- University Avenue is a four-lane arterial serving many local uses

POTENTIAL SOLUTIONS:

- Direct flyover connections between Bayfront/Marsh and Highway 101 (north of Marsh)
- Bayfront Expressway extension to Woodside Road
- Elevated roadway over Dumbarton RR between University and Highway 101 (south of Marsh)
- Grade separate University/Bayfront Expressway
- Grade separate Willow/Bayfront
- Increase Willow Road capacity (grade separated intersections, "fast lane," tunnel, reversible lanes, expressway)
- Aerial braided roadway connections: leaving southbound Highway 101 downstream of Dumbarton Railroad Bridge, proceeding to Willow Road and continuing over Willow Road to Bayfront Expressway, continuing over Bayfront Expressway to touchdown just west of bridge;

COMPLEMENTARY IMPROVEMENTS:

- ITS, pricing
- Combine improvements addressing connection to Highway 101 *South*

THEME 2

Improve connection (i.e. increase traffic capacity) between Dumbarton Bridge touchdown and Highway 101 *South*

ISSUES:

- Congestion at intersections on Bayfront Expressway: University, Willow
- Willow Road, although a State Highway, is just a four-lane arterial serving several local uses
- University Avenue is a four-lane arterial serving many local uses

POTENTIAL SOLUTIONS:

- New south connection (various alignment options)
- Tunnel beneath East Palo Alto between (roughly) the Dumbarton Bridge and Highway 101, beneath the Ravenswood Industrial Area and the residential neighborhoods on East Palos Alto's residential subdivisions.

- Increase Willow Road capacity (grade separated intersections, "fast lane," tunnel, reversible lanes, expressway)
- Aerial braided roadway connections: leaving northbound on Highway 101 upstream of Oregon/Embarcadero, aligned over E. Bayshore and crossing University Avenue, proceeding to Willow Road and continuing over Willow Road to Bayfront Expressway, continuing over Bayfront Expressway to touchdown just west of bridge;

COMPLEMENTARY IMPROVEMENTS:

- ITS, pricing
- Combine improvements addressing connection to Highway 101 *North*

THEME 3

Expand capacity on Highway 101 South (County line to Shoreline)

ISSUES:

- Extreme congestion during long a.m. and p.m. peak periods, in both directions
- Relatively high accident rates
- No auxiliary lanes (none planned yet either – to match SM County cross-section)

POTENTIAL SOLUTIONS:

- Auxiliary lanes on 101 from Embarcadero to Shoreline
- Widen 101 to 10 through lanes (4 mixed flow, 1 HOV each direction) and reconstruct interchanges at Embarcadero/Oregon, San Antonio, and Rengstorff (perhaps Old Middlefield Way)
- Widen 101 to 12 lanes (4 mixed flow, 1 auxiliary, 1 HOV each direction)
- Reconstruct Embarcadero/Oregon interchanges to provide room for ultimate 10-12 lane freeway

COMPLEMENTARY IMPROVEMENTS:

- Convert HOV lanes to mixed flow lanes
- ITS

These kinds of improvements would complement the *85/101 North* project and *SMCTA Auxiliary Lanes Project (Marsh to County line)*; the 85/101 North project will construct 12-lane cross section at Shoreline that narrows to 11 lanes at Old Middlefield Way and then to 8 lanes north of Old Middlefield Way; the SMCTA Auxiliary Lanes Project will construct 10-lane

THEME 4

Expand capacity on Highway 101 North (County Line to Woodside Road)

ISSUES:

- Extreme congestion during long a.m. and p.m. peak periods, in both directions
- Relatively high accident rates

POTENTIAL SOLUTIONS:

- Widen 101 to 12 lanes (4 mixed flow, 1 auxiliary, 1 HOV each direction), which would require reconstruction of interchanges at Woodside Road, Marsh Road, Willow Road, and University Avenue
- Put HOV lanes on structure, use remaining available space for one added through lane each direction; HOV lanes may need to be express to bypass local interchanges
- Build elevated deck to accommodate 2 (or more) added mixed flow lanes above Highway 101, which could be reversible;
- Introduce congestion pricing – i.e. charge to use new lanes?
- Reversible lanes on Highway 101
- Reconstruct selected interchanges in phases, to provide clear width for future widening

COMPLEMENTARY IMPROVEMENTS:

- ITS

THEME 5

Divert commuter traffic from East Palo Alto neighborhoods (east/south of University)

ISSUES:

- Heavy commuter traffic (cut-through) volumes and congestion on East Bayshore, Pulgas, Clarke, and Bay in East Palo Alto

POTENTIAL SOLUTIONS:

- New south connection (various alignment options)
- Increase University Avenue capacity (remove parking, widen or two-level roadway, or tunnel and surface roadway, grade separated intersections, or reversible lanes)
- Increase Willow Road capacity (grade separated intersections, “fast lane,” tunnel, reversible lanes, expressway)
- Traffic calming (prohibit movements, prohibit non-resident traffic, etc.) on affected streets;

COMPLEMENTARY IMPROVEMENTS:

- Close neighborhood streets to through traffic in combination with above capacity increases

- Pricing/tolls on new connection
- ITS

THEME 6

Divert commuter traffic off University Avenue

ISSUES:

- Heavy congestion on University Avenue due to through traffic
- Street is essentially a barrier that divides the community, resulting in safety, quality of life challenges

POTENTIAL SOLUTIONS:

- New south connection (various alignment options)
- Increase Willow Road capacity
- Streetscape and traffic calming improvements on University Avenue
- Roundabouts at Donohoe, Bay, other intersections

COMPLEMENTARY IMPROVEMENTS:

- Close neighborhood streets (Pulgas, Clarke, Bay) to through traffic
- Pricing/tolls on new connection
- ITS

THEME 7

Traffic calming on local residential streets

ISSUES:

- Congestion on University Avenue west of Highway 101 induces diversion to Woodland Avenue in Menlo Park
- Heavy commuter cut-through traffic in East Palo Alto (E. Bayshore to Pulgas or Clarke to Bay to University)

POTENTIAL SOLUTIONS:

- Modify Woodland Avenue to maintain access to University Palms/Four Seasons Hotel and impede commuter cut-through traffic
- Close Pulgas, Clarke, and Bay to cut-through traffic using traffic calming improvements

COMPLEMENTARY IMPROVEMENTS:

- ITS

THEME 8

Improve freeway access

ISSUES:

- No southbound Highway 101 on-ramp at San Antonio Avenue puts pressure on low-capacity on-ramp at Charleston Road
- Southbound connections at Woodside Road create congestion, limit access to Highway 101

POTENTIAL SOLUTIONS:

- Add southbound on-ramp at San Antonio Avenue and remove on-ramp at Charleston Road
- Reconstruct Highway101/Woodside Road interchange

THEME 9

Accommodate traffic impacts of major developments

ISSUES:

- Abbott Labs and Marina Shores projects in Redwood City will add xxx to yyy peak hour vehicle trips to the Seaport Boulevard/Woodside Road/Highway 101 interchange

POTENTIAL SOLUTIONS:

- Widen the planned Blomquist Street Extension from 2 to 4 lanes, creating a 4-lane parallel arterial between Seaport Boulevard and Whipple Road
- Reconstruct Woodside Road interchange
- Widen Woodside Road

THEME 10

Improve traffic management

ISSUES:

- Traffic is relatively "self-managed" in the corridor; as a result, poor driving habits and reactionary driving create unnecessary friction, congestion, and incidents
- Without management, traffic flows to fill available capacity regardless of size or nature of street system

POTENTIAL SOLUTIONS:

- Ramp metering to provide more constant/consistent flow on mainline Highway 101

- Metering both directions of Dumbarton Bridge at west touchdown to introduce more orderly flow on University Avenue, Willow Road, Bayfront Expressway, and vehicle input/output at Highway 101

COMPLEMENTARY IMPROVEMENTS:

- ITS
- Pricing/tolls

THEME 11

Improve local access across Highway 101

ISSUES:

- Highway 101 interchanges, especially those at Marsh, Willow, and University, act as bottlenecks and therefore barriers to local traffic desiring to cross Highway 101

POTENTIAL SOLUTIONS:

- Restricted-access, limited capacity tunnel or aerial connections across Highway 101 corridor that would serve only crossing traffic, not traffic entering/leaving Highway 101

COMPLEMENTARY IMPROVEMENTS:

- ITS, including signage and electronic Fastrak-like systems that would be programmed to recognize local vehicles and identify (and cite) vehicles not technically permitted to use the restricted-access facilities